

**Qualitative Project-level Hot Spot Analysis in
PM10 and PM2.5 Nonattainment and
Maintenance Areas**

Section III: Analytical Requirements

What are the requirements for assessing impacts?

- **The analysis must:**
 - Analyze total emissions burden of direct PM emissions which may result from implementing the project, together with background concentrations
 - Include the entire project; be performed only after the major design features have been identified

(40 CFR 93.123(c))

**What are the requirements for assessing impacts?
(con't)**

- **The analysis must:**
 - Use assumptions consistent with the regional emissions analysis
 - Assume mitigation only with written commitments
 - Consider emissions increases from construction-related activities as temporary if only during construction phase and last 5 years or less at any individual site

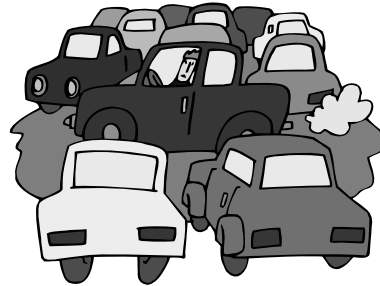
(40 CFR 93.123(c))

Any significant change in design concept or scope will require a reevaluation of regional emissions, a new qualitative hotspot analysis, and a new conformity determination.

What emissions are considered in the PM hotspot analysis?

PM2.5 and PM10 : Directly emitted PM emissions must be considered in all analyses

- ✓ Tailpipe
- ✓ Brake wear
- ✓ Tire wear



What are the requirements for considering reentrained road dust?

PM2.5: Only considered in any PM2.5 analysis (including hotspot) if it has been found to be a significant contributor (40 CFR 93.102(b)(3)).

PM10: Must be considered in all analyses



Reentrained road dust is considered in all PM10 analyses because fugitive dust dominates PM10 inventories.

What are the requirements for considering construction dust?

(40 CFR 93.123(c)(5))

PM_{2.5} and PM₁₀: Not required to be assessed if considered temporary (only during construction, and lasts five years or less at any individual site)



Photo courtesy of Massachusetts Turnpike Authority

What are the requirements for including PM precursors?

Not included.

PM hotspot analyses are based directly on emitted PM₁₀ and PM_{2.5} and not any of the PM precursors. Secondary particles formed through precursors (primarily nitrates and sulfates) can take several hours to form in the atmosphere giving emissions time to disperse beyond the immediate area of concern.

What time frame and analysis years should be used?

- **Consider the full time frame of an area's transportation plan (or regional emissions analysis for isolated rural areas)***
- **Examine the year(s) which peak emissions are expected**
 - This is the year(s) a new violation or worsening of an existing violation would most likely occur.
 - Both the project's emissions as well as the background emission are considered when selected which year(s) to examine.
 - If no hotspot impacts are expected for the year of highest emissions, then no adverse impacts would be expected in any other years within the timeframe of the plan/regional emissions analysis

* Not affected by SAFETEA-LU allowance to elect a change in time horizons for plan/TIP conformity determinations

This requirement is not new to the March 10, 2006 rule.

Sample Factors for Peak Year Emissions

PM2.5

A near-term year when the project is open to traffic, when diesel dominates emissions with declining trends. Other factors:

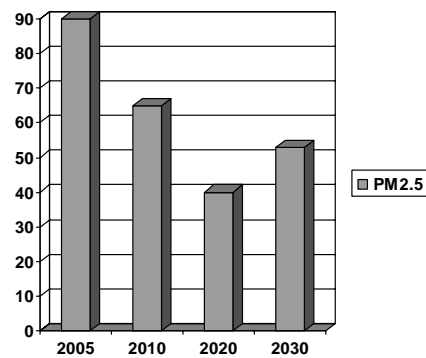
- fleet characteristics
- VMT trends

PM10

The year of highest VMT, when reentrained road dust dominates emissions. Other factors:

- diesel truck fractions

Sample Direct PM2.5 Trend



These are only examples of the considerations when selecting year(s) of peak emissions.

Determination of year(s) of peak emissions should be discussed through interagency consultation.